Docket No.: TBRX-P01-001
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jones, Peter W.J. et al.
Application No.: 09/919,584 Confirmation No.: 7041

Filed: July 30, 2001 Art Unit: 2672

For: METHOD OF CREATING A FULL COLOR DISPLAY Examiner: Wang, Jin Cheng

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

MS Appeal Briefs - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant received a Notice of Non-Compliant Appeal Brief (37 CFR 41.37) mailed October 31, 2006 for the above-captioned matter. A copy of this Notice is enclosed.

Applicant respectfully submits the Amended Appeal Brief including the sections that were omitted from the previous Appeal Brief filed on March 21, 2005. Said sections are: Summary of claimed subject matter", "Grounds of rejection to be reviewed on appeal", "Evidence appendix", and "Related proceedings appendix".

Applicant believes no fee is due with this response other than the five month extension fee. However, if a fee is due, please charge our Deposit Account No. 18-1945, under Order No. TBRX-P01-001 from which the undersigned is authorized to draw.

Dated: April 30, 2007

Respectfully submitted,

By _____ Reg. 55,776
on behalf of Edward A. Gordon
Registration No.: 54,130
ROPES & GRAY LLP
One International Place
Boston, Massachusetts 02110-2624
(617) 951-7000
(617) 951-7050 (Fax)
Attorneys/Agents For Applicant

Notification of Non-Compliant Appeal Brief (37 CFR 41.37)	Application No. 09/919,584	Applicant(s) JONES ET AL.	
	Examiner Jin-Cheng Wang	Art Unit 2628	

The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

The Appeal Brief filed on *24 March 2005* is defective for failure to comply with one or more provisions of 37 CFR 41.37.

To avoid dismissal of the appeal, applicant must file anamended brief or other appropriate correction (see MPEP 1205.03) within **ONE MONTH or THIRTY DAYS** from the mailing date of this Notification, whichever is longer. **EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136.**

1. ☐ The brief does not contain the items required under 37 CFR 41.37(c), or the items are not under the proper heading or in the proper order.

2. ☐ The brief does not contain a statement of the status of all claims, (e.g., rejected, allowed, withdrawn, objected to, canceled), or does not identify the appealed claims (37 CFR 41.37(c)(1)(iii)).

3. ☐ At least one amendment has been filed subsequent to the final rejection, and the brief does not contain a statement of the status of each such amendment (37 CFR 41.37(c)(1)(iv)).

4. ☐ (a) The brief does not contain a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings, if any, by reference characters; and/or (b) the brief fails to: (1) identify, for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function under 35 U.S.C. 112, sixth paragraph, and/or (2) set forth the structure, material, or acts described in the specification as corresponding to each claimed function with reference to the specification by page and line number, and to the drawings, if any, by reference characters (37 CFR 41.37(c)(1)(v)).

5. ☐ The brief does not contain a concise statement of each ground of rejection presented for review (37 CFR 41.37(c)(1)(vi))

6. ☐ The brief does not present an argument under a separate heading for each ground of rejection on appeal (37 CFR 41.37(c)(1)(vii)).

7. ☐ The brief does not contain a correct copy of the appealed claims as an appendix thereto (37 CFR 41.37(c)(1)(viii)).

8. ☐ The brief does not contain copies of the evidence submitted under 37 CFR 1.130, 1.131, or 1.132 or of any other evidence entered by the examiner **and relied upon by appellant in the appeal**, along with a statement setting forth where in the record that evidence was entered by the examiner, as an appendix thereto (37 CFR 41.37(c)(1)(ix)).

9. ☐ The brief does not contain copies of the decisions rendered by a court or the Board in the proceeding identified in the Related Appeals and Interferences section of the brief as an appendix thereto (37 CFR 41.37(c)(1)(x)).

10. ☒ Other (including any explanation in support of the above items):

The brief filed March 24, 2005 does not contain the following sections:
(1) "Summary of claimed subject matter," as set forth in 37 CFR 41.37(c) (1)(v);
(2) "Grounds of rejection to be reviewed on appeal," as set forth in 37 CFR 41.37(c)(1)(vi);
(3) "Evidence appendix," as set forth in 37 CFR 41.37(c)(1)(ix); and
(4) "Related proceedings appendix," as set forth in 37 CFR 41.37(c)(1)(x)..

KEE M. TUNG
SUPERVISORY PATENT EXAMINER

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.

EXAMINER

ART UNIT	PAPER
	20061013

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

The appeal brief filed March 24, 2005 is defective for the reasons given in the PTOL-462.

This communication is in response to the BPAI remand dated 5/10/2006. Appellants are hereby notified that the IDS filed 11/5/2005 has been considered by the Examiner. An electronically signed copy of the IDS is hereby attached.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jcw

KEE M. TUNG
SUPERVISORY PATENT EXAMINER

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Jones, Peter W. J. et at.

Application No.: 09/919584 Confirmation No.: 7041

Filed: July 30, 2001 Art Unit: 2672

For: METHOD OF CREATING A FULL COLOR DISPLAY Examiner: Wang, Jin Cheng

AMENDED APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is submitted in response to the Final Office Action mailed April 19, 2004, in support of the Notice of Appeal filed on August 19, 2004, and in Response to the Notification of Non-Compliant Appeal Brief mailed October 31, 2006.

I. REAL PARTY OF INTEREST

The real party of interest is Tenebraex Corporation, the assignee of the parties named in the caption of this brief.

II. RELATED APPEALS AND INTERFERENCES

Applicants are unaware of any related appeals or interferences that will directly affect, directly be affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-24 are pending and are on appeal. Claims 1-24 were finally rejected in the Office Action dated April 19, 2004. Claims 1, 12, and 13 are independent claims; all other pending claims depend upon one or more of the independent claims. No claims have been allowed.

IV. STATUS OF AMENDMENTS

Claims 1 – 24 were finally rejected in the Office Action dated April 19, 2004. An Amendment After Final Rejection was filed on September 20, 2004. The Amendment proposed amending claim 6 to more specifically claim Applicants' invention, and claims 19 and 24 to correct typographical errors. An Advisory Action was mailed on November 2, 2004, in response to the Amendment. In the Advisory Action, the Examiner stated that the Amendment and Response would not be entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention includes, but is not limited to, devices and techniques for creating a display in an electronic device that gives the perception to a viewer of a full range of colors based on a matrix of two different color elements (see, e.g., page 2, lines 14-23 of Applicants' specification). In particular, the devices and techniques include providing a two-color display of optical elements that are arranged in an alternating pattern (see, e.g., page 10, lines 10-18 of Applicants' specification), determining relative brightness of points associated with an image presented on a full color display (see, e.g., page 8, lines 23-34 of Applicants' specification), and translating the relative brightness of the points created on the full color display into corresponding brightness of the respective points on the two-color display (see, e.g., page 8, lines 23-34 and page 9, lines 5-30 of Applicants' specification). In certain implementations, the optical elements of the two-color display are sequentially activated to simulate the effect of the full color display (see, e.g., page 10, lines 10-18 of Applicants' specification).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-24 are unpatentable under 35 U.S.C. 103(a) over Young (US 5,682,180) in view of Havel (US 6,018,237).

Claims 1, 12, and 13 are the pending independent claims in this application. Claims 2-11 are dependent on claim 1 and claims 14-24 are dependent on claim 13. The claims do not stand or fall together.

VII. ARGUMENT

Claims 1-24 are finally rejected under 35 U.S.C. 103(a) over Young (US 5,682,180) in view of Havel (US 6,018,237). The rejections are respectfully appealed. Applicants specifically address the independent claims, claims 1, 12, and 13, below.

In the final Office Action mailed April 19, 2004, all the claims, claims 1-24, were finally rejected over Young and Havel. With regard to independent claims 1, 12, and 13, the Examiner maintained that Young teaches a method that gives the perception of a display with a full range of color from a matrix of optical elements of a first or a second color, comprising providing a two-color display of optical elements of a first color and a second color and being arranged in an alternating pattern, and translating the relative brightness of the points created by the full color display into a corresponding brightness for the for the respective points on the two-color display. The Examiner further maintained that Havel teaches determining for an image presented on a full color display, the relative brightness for points of the image produced by the full color display, the feature Young fails to teach.

In the Advisory Action mailed November 2, 2004, the Supervisory Examiner asserts that Young teaches determining for an image presented on a full color display, the relative brightness for points of the image produced by the full color display.

The Examiner has asserted that it would have been obvious under Young, in view of Havel, to provide a two-color display of optical elements of a first color or a second color to give the perception of a display with a full range of color. But these references, even when combined,

do not teach or suggest all the features of the Applicants' invention. Applicants' invention provides the perception of a display with a full range of color from a matrix of optical elements of a first or a second color. Neither Young nor Havel discloses or suggests providing a two-color display of optical elements of a first color and a second color and being arranged in an alternating pattern to give the perception of a display with a full range of color.

Instead, Young teaches the use of two opponent color vectors to account for the majority of all perceived colors and gives illustrative examples using orange/cyan and black/white opponent color vectors. (Col. 3, lines 39-49). The use of the orange/cyan and black/white opponent color vectors as depicted in Figures 2 and 4 demonstrates that Young uses four colors, i.e., orange, cyan, black, and white, to simulate a full color image. Young teaches the use of two opponent color vectors using a total of four colors. Therefore, Applicants submit Young fails to teach or suggest:

1) providing a **two-color** display of optical elements of a first color and a second color and being arranged in an alternating pattern as required by independent claim 1,
2) providing a **two-color** display of optical elements of a first and a second color arranged in an alternating pattern as required by independent claim 12, or
3) a display having **two-color** elements as required by independent claim 13.

Furthermore, neither Young nor Havel teach or suggest determining for an image presented on a full color display, the relative brightness for points of the image produced by the full color display. As described in Two-Dimensional Signal and Image Processing, "[b]rightness refers to how bright the light is. Hue refers to the color, such as red, orange, or purple. Saturation . . . refers to how vivid or dull the color is." Jae S. Lim, Two-Dimensional Signal and Image Processing, p. 414 (1990).

The Advisory Action asserts that "Young teaches determining for each pixel of the original image in a full color display, the brightness of a first pixel in the first channel relative to the brightness of a second pixel in a second channel since Young teaches determining the first color (Ri+Gi+Bi)/3 with the first pixel as opposed to determining the second color Ri-Bi or

aRi+bGi+CGi [sic] associated with the second pixel of the original image and thereby determining the relative brightness of each pixel of the original image in a full color display." Applicants disagree. Young discusses using "three separate images of a scene, a red image, a green image, and a blue image [to define] the two separate opponent color vector information channels" (col. 4 lines 64-67), but Young does not discuss determining the brightness of the pixels in the original images. Furthermore, nowhere does Young suggest determining the ***relative*** brightness for points of an image produced by a full-color display, as conceded by the Examiner in the Examiner's Answer of September 8, 2005.

In the final Office Action dated April 19, 2004, the Examiner asserts that "Havel teaches determining for an image presented on a full color display, the relative brightness for the points of the image produced by the full color display (col. 1, line 65 to col. 3 line 11)" Careful review of column 1, line 65 to column 3, line 11 reveals that the Examiner is misrepresenting the teachings of Havel. He does not disclose determining the brightness of a full-color display. While Havel discloses, for a "2-primary ... color converter ... converting an input voltage to variable color capable of illuminating the display" (column 2, lines 16-17), he does not disclose using a previously determined full-color display brightness measurement to determine the brightness of the illumination. Furthermore, Havel teaches using R, G, and Y input values to control the red LED and green LED outputs. But, Havel does ***not*** teach any specific means of determining the R, G, and Y values nor does he discuss measuring the brightness of these values. Specifically, Havel does ***not*** teach calculating, computing, measuring, ascertaining, or otherwise determining the relative brightness for points on a full-color display or ***translating*** these measurements into a corresponding brightness for the respective points on a two-color display. Therefore, Applicants submit that Young and Havel fail to teach or suggest:

1) determining, for an image presented on a full color display, the relative brightness for points of the image produced by the full color display, as required by independent claim 1,

2) determining for an image presented on a three color display, the relative brightness for each point of the image produced by the three color display as required by independent claim 12, or

3) a memory device for storing information representative of a plurality of points for making up the image, each point being associated with information representative of three color components as required by independent claim 13.

Furthermore, Young fails to teach or suggest translating the relative brightness of the points created by the full color display into a corresponding brightness for the respective points on the two-color display. In the final Office Action dated April 19, 2004, the Examiner asserts that Young "teaches a method" including "translating the relative brightness of the points created by the full color display into a corresponding brightness for the respective points on the two-color display (col. 8, lines 12-58)." However, nowhere in column 8, lines 12-58 does Young disclose translating the brightness of points in a full-color display to a corresponding brightness of the respective points in a two-color display, nor any means for doing so. In this section, Young describes the use of a polarizing filter to select the proportion of orange versus cyan in each image pixel; he does ***not*** discuss adjusting the brightness of the image or of any image pixel. Young teaches polarizing and filtering light on the Y axis to be orange, on the Z axis to be cyan, and between the Y and Z axes "to be a combination of orange and cyan, the proportion of each color depending upon the angle of polarization." (Col. 8, lines 44-46). Young describes the use of a polarizing filter to select the proportion of the orange hue versus the cyan hue in each image pixel. However, Young is silent regarding the brightness of these hues. Young fails to teach or suggest varying, modifying, or using the brightness of the orange and cyan hues.

In a further reference to Young teaching translating brightness from a full-color display to a two-color display, on page 4 of the Examiner's Answer, the Examiner states that, in column 4, lines 14-33, "Young discloses the total luminance (brightness) of each orange and cyan phosphor pair and the total luminance for all the orange/cyan phosphor pairs may be **lowered or raised**, and thus *transformed/translated.*" However, the Examiner is misrepresenting the teachings of Young: Young does ***not*** disclose *translating* the luminance of each of the orange/cyan pairs; he specifically states that "the total luminance for ***all*** the orange/cyan phosphor pairs may be lowered or raised ... **for the purposes of picture brightness**" (emphasis added) (column 6, lines 18-20). Thus, Young is disclosing changing the **overall** luminance of ***all*** the orange/cyan points on the display for the purpose of lowering or raising the overall brightness of the display. Young does not discuss adjusting the total luminance for any

individual phosphor pair. In fact, Young specifically describes the total luminance of each of the orange/cyan pairs as being "kept constant" (column 6, lines 15-16). While Young does mention that "the apportionment of the luminance of each phosphor in each pair [may be] varied" (emphasis added) (that is, the ratio of the luminance of the orange phosphor to the luminance of the cyan phosphor may be varied, while the total luminance remains constant) (column 6, lines 16-17), he does ***not*** teach adjusting the ***total*** luminance of each pair. Furthermore, Young does not teach adjusting the relative brightness of the points on the two-color display ***based on*** a previously determined relative brightness of the points of the image produced by a full-color display, as is currently claimed.

The Advisory Action states that "Young teaches electronically controlling and translating the relative brightness of the points/pixels presented on a full color display and the relative brightness of the points/pixels presented on a full color display INTO the corresponding brightness for the respective points/pixels on the two-color display [sic]." However, the Examiner is misrepresenting the teachings of Young. Applicants have thoroughly reviewed Young, and nowhere does Young discuss measuring, controlling, or translating the **relative** brightness of points or pixels on a full color display.

Therefore, Applicants submit Young fails to teach or suggest:

1) translating the relative brightness of the points created by the full color display into a corresponding brightness for the respective points on the two-color display as required by independent claim 1,
2) translating the relative brightness of each point created by the three color display into a corresponding brightness for the respective points on the two-color display as required by independent claim 12, or
3) a process for translating the relative brightness of the three color components to relative brightness levels for the two-color elements of the display as required by independent claim 13.

Applicants note that the Havel publication fails to bridge the gap between Young and Applicants' invention. Havel fails to teach a device or method that determines or translates the

relative brightness of the points created by a full color display into a corresponding brightness for the respective points on a two-color display. Havel merely teaches measuring an input parameter and generating in response thereto, a two or three color variable display. Havel lacks any description of any system or method that determines or translates a measure of relative brightness into anything. Moreover, there is no suggestion in either Young or Havel as to how the device of Havel could be modified to translate a measure of relative brightness on a three color display to a color display having a reduced number of colors, yet this is the explicit subject matter of all pending claims.

Applicants further submit that dependent claims 4, 5, 6, 7, and 8 patentably distinguish over Young and Havel as both references are silent as to and fail to teach:

1) Flashing the two-color display includes alternating the display at the flashing period between the image presented in the first and the second color as required by claim 4.

2) Varying the flashing period as required by claim 5.

3) Adding the relative brightness of a third color of a point in a three color image to a relative brightness of the first color of a two-dimensional point of the first and the second color as required by claim 6.

4) Summing the brightness for a three color red element with half the brightness of the three color green emitter to determine the relative brightness for the two-color first color emitter, and summing the brightness for a three color blue element with half the brightness of the three color green emitter to determine the relative brightness for the two-color second color emitter as required by claim 7. In the final Office Action dated April 19, 2004, the Examiner rejects this claim based on the teachings of Young (column 8, lines 12-58), but as explained above, nowhere in this section does Young disclose translating the brightness of points in a full-color display to a corresponding brightness of the respective points in a two-color display, nor any means for doing so. The Examiner states that Young teaches "the dimension of the coordinates consisting of XYZ which are in three dimensional [sic] and can be in two dimensional [sic] too." However, the examiner is misrepresenting the

teachings of Young in column 8, lines 12-58. In this section, Young discusses using polarizing filters to polarize an incident light source. Young discloses polarizing the light, in the Y- and Z- axes directions, and does ***not*** teach "mapping a three dimensional coordinate" to a "two dimensional point," as stated by the Examiner. Furthermore, claim 7 presents a ***specific*** formula for use in translating the brightness of points in a full-color display to the corresponding brightness of the respective points in the two-color display, and nowhere in his patent does Young suggest any similar such formula.

5) Generating a noise signal and adding the noise signal to the relative brightness of the first and/or second color emitter of the two-color display as required by claim 8. In the final Office Action dated April 19, 2004, the Examiner rejects this claim on the basis of Young (col.3, lines 12-49), who discloses that "...7% of the color variance is attributable to noise in the neural data." While Young discloses color variance attributable to noise, he does ***not*** suggest using that noise in producing the colors for the two-color display. In fact, Young discloses the noise specifically to show that the two color vectors he is using to generate a display will only account for 87% of all perceivable colors—that is, that the other 13% of the spectrum (including the noise) is ***not*** used. Furthermore, nowhere in the patent does Young suggest ***generating*** a noise signal, as is currently claimed.

Similarly, dependent claims 2-3, 9-11, and 14-24 include further limitations on independent claims 1 and 13 that are neither taught nor suggested by Young or Havel, either individually or in combination.

On September 20, 2004, Applicants submitted an amendment to claim 6 to more specifically recite Applicants' invention. This amendment was not entered by the Examiner. Applicants request the amendment to claim 6 be entered. Applicants submit proposed amended claim 6 also patentably distinguishes over Young and Havel as both references are silent as to and fail to teach adding the relative brightness of a third color of a point in a three color image to a relative brightness of the first color of a two-dimensional point of the first and the second color as required.

Moreover, the references have been combined only through impermissible hindsight. None of the cited references teaches or suggests that the Havel display system is applicable to providing a two-color display of optical elements of a first color or a second color to give the perception of a display with a full range of color. Contrary to the Examiner's interpretation, the principal object of Havel is to provide a measuring instrument with a variable color digital display. (Col. 1, ll. 65-67). In addition, Havel teaches away from Applicants' invention by emphasizing the "[c]ompletely new, unexpected and heretofore impossible, features" obtained by substituting a variable color digital display for a well known monochromatic digital display, e.g., "capable of illuminating a display in any color of the spectrum." (Col. 2, ll. 2-5 and ll. 14-16). Applicants accordingly submit that there is no motivation in the art to combine Young and Havel.

To establish a prima facie case of obviousness, the Examiner must establish that all of the claim limitations are taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974). Furthermore, the Examiner must provide some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teaching. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 682 (Fed. Cir. 1990).

As none of the references cited by the Examiner disclose or suggest, either alone or in combination, all of the elements of the Applicants' invention, and as the cited references have been impermissibly combined, the references do not render Applicants' independent claims obvious under 35 U.S.C. §103. Applicants further submit that all dependent claims pending in the application are also non-obvious under 35 U.S.C. 103 in view of the above. *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988).

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A. The claims in Appendix A do not include the amendments filed by Applicant on September 20, 2004, as the Advisory Action of 11/02/2004 indicated that these amendments were not entered.

IX. EVIDENCE

None.

X. RELATED PROCEEDINGS

None

CONCLUSION

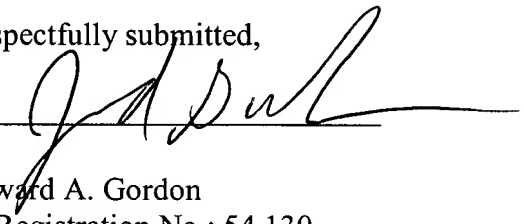
For the reasons given above, it is respectfully urged that the final rejection be reversed and that all pending claims be allowed.

Applicants authorize the Commissioner to withdraw the five month extension fee from **Deposit Account 18-1945**. Applicants believe this response is being timely filed and no further fees are necessary. If there are any other fees not accounted for above, Applicants authorize the Commissioner to charge the fee to **Deposit Account 18-1945**.

If there are any questions after reviewing this paper, the Examiner is invited to contact the undersigned at (617) 951-7000.

Dated: April 30, 2007

Respectfully submitted,

By 

Edward A. Gordon
Registration No.: 54,130
ROPES & GRAY LLP
One International Place
Boston, Massachusetts 02110-2624
(617) 951-7000
(617) 951-7050 (Fax)
Attorneys/Agents For Applicants

APPENDIX A

1. A method that gives the perception of a display with a full range of color from a matrix of optical elements of a first or a second color, comprising

providing a two-color display of optical elements of a first color and a second color and being arranged in an alternating pattern,

determining, for an image presented on a full color display, the relative brightness for points of the image produced by the full color display, and

translating the relative brightness of the points created by the full color display into a corresponding brightness for the respective points on the two-color display.

2. A method according to claim 1, wherein the step of translating includes mapping a three dimensional coordinate representative of the relative brightness of a point to a two dimensional point.

3. A method according to claim 1, including generating a flashing period representative of a timing pattern for flashing the two-color display.

4. A method according to claim 1, wherein flashing the two-color display includes alternating the display at the flashing period between the image presented in the first and the second color.

5. A method according to claim 4, including varying the flashing period.

6. A method according to claim 1, wherein the step of translating includes translating the relative brightnesses of a point in a red-green-blue image to a relative brightnesses of a two-dimensional point of the first and the second color.

7. A method according to claim 1, wherein the full color display includes red, green and blue emitters, and wherein the step of translating includes

summing the brightness for a three color red element with half the brightness of the three color green emitter to determine the relative brightness for the two-color first color emitter, and

summing the brightness for a three color blue element with half the brightness of the three color green emitter to determine the relative brightness for the two-color second color emitter.

8. A method according to claim 7, including generating a noise signal, and

summing the noise signal with the relative brightness for the two-color of the first and/or the second color emitter.

9. A method according to claim 1, including the further step of providing a video driver for driving a video display as a function of the translated relative brightness of points for a two-color display.

10. A method according to claim 1, wherein the optical elements comprise light emitting diodes.

11. A method according to claim 1, wherein the optical elements comprise filters.

12. A method for creating the perception of a display with a full range of colors from a matrix of optical elements of a first or a second color, comprising

providing a two-color display of optical elements of a first and a second color arranged in an alternating pattern,

determining for an image presented on a three color display, the relative brightness for each point of the image produced by the three color display,

translating the relative brightness of each point created by the three color display into a corresponding brightness for the respective points on the two-color display, and

sequentially activating optical elements of the first and the second color, for simulating the effect of a full color display.

13. An apparatus for visually displaying information on a two-color display, comprising

a display having two-color elements,

a memory device for storing information representative of a plurality of points for making up the image, each point being associated with information representative of three color components, and

a process for translating the relative brightness of the three color components to relative brightness levels for the two-color elements of the display.

14. An apparatus according to claim 13, further comprising a server system for executing the translation process and for delivering to the display having two color elements information representative of an image.

15. An apparatus according to claim 13, further including

a timer for periodically flashing the display.

16. An apparatus according to claim 13, further including

a noise generator for generating a noise signal having two-color components and for delivering the noise signal to the video driver process for processing the noise signal with the three color components of the image.

17. An apparatus according to claim 16 including a dynamically changing filter for introducing variation into the translation of the relative brightness of the three color components to relative brightness for the two-color elements.

18. An apparatus according to claim 13, wherein the process includes

a process for summing the brightness for a first one of the three color components with half the brightness of a second one of the three color components to determine the relative brightness for a first color component of the display, and

summing the brightness for a third color component with half the brightness of the second color component to determine the relative brightness for the second color component of the display.

19. An apparatus according to claim 13, wherein the process includes

a process for determining the long wavelength component of a two color display by multiplying the number s representative of relative brightness of three colors in a three color display by values representative of the effect of a longwave pass filter, and summing the generated numbers to provide the relative brightness of that point in the long wave component of the two color display, and

a process for determining the short wavelength component of a two color display by multiplying the number s representative of relative brightness of three colors in a three color display by values representative of the effect of a shortwave pass filter, and summing the generated numbers to provide the relative brightness of that point in the short wave component of the two color display.

20. An apparatus according to claim 13, further comprising a border having a color that is the combination of the first and the second colors or the two color display and being arranged substantially around the periphery of the display.

21. An apparatus to claim 20, wherein the border comprises part of the image displayed to the user.

22. An apparatus according to claim 20, wherein the border comprises colored border formed as an edge around the two-color display.

23. An apparatus according to claim 20, wherein the border comprises a yellow border of spectral yellow or yellow formed from red-green components.

24. An apparatus according to claim 13, wherein the two-color display include a display selected from the group consisting of an LED display, and LCD display, a light emitting polymer display and a CRT display.